

FOR DISCUSSION PURPOSES ONLY

(10:00 am meeting on Monday, May 18, 2009)

41. (New) A brake shoe assembly comprising:

a brake shoe having an outer radial surface, at least one slot protruding inward from the outer radial surface, and a plurality of shoe holes in the outer radial surface for individual fasteners;

a brake plate having a backing plate and a frictional brake lining, wherein the backing plate includes plate holes, at least one key to mate with the slot for resisting radial movement of the brake plate relative to the outer radial surface of the brake shoe without the key passing through the brake shoe, and a preassembled fastener spaced from the key and extending away from the brake lining and toward the brake shoe to facilitate alignment of the key with the slot, and wherein the frictional brake lining is molded to the backing plate to form a continuous molded layer that covers at least a portion of the preassembled fastener, the brake lining being free of holes extending through the continuous molded layer; and

a plurality of individual fasteners that insert through respective plate and shoe holes to secure the brake plate to the brake shoe.

42. (New) The brake shoe assembly of claim 41 wherein the slot protrudes inward without passing through the brake shoe.

43. (New) The brake shoe assembly of claim 41 wherein the plate holes in the backing plate are spaced from the frictional brake lining to prevent damage to the frictional brake during insertion of the individual fasteners through respective plate and shoe holes.

44. (New) The brake shoe assembly of claim 41 wherein the backing plate includes four corners defining the plate holes as well as portions of the backing plate where the backing plate is free from the frictional brake lining.

45. (New) The brake shoe assembly of claim 41 wherein the backing plate includes four corners defining the plate holes, the frictional brake lining being molded to a portion of the backing plate to expose the plate holes in the backing plate.

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46. (New) The brake shoe assembly of claim 41 wherein the backing plate includes four corners defining the plate holes and an area between each of the four corners, the frictional brake lining being molded to the area between each of the four corners to expose the plate holes in the backing plate.

47. (New) The brake shoe assembly of claim 41 wherein the backing plate includes a plurality of apertures and the frictional brake lining is molded at least partially through the apertures in the backing plate to facilitate attachment of the frictional brake lining to the backing plate.

48. (New) The brake shoe assembly of claim 47 wherein the frictional brake lining is integrally molded into each of the apertures in the backing plate to mechanically attach the frictional brake lining to the backing plate.

49. (New) The brake shoe assembly of claim 47 wherein each of the apertures in the backing plate is spaced from each plate hole, key, and preassembled fastener in the backing plate.

50. (New) The brake shoe assembly of claim 41 wherein the preassembled fastener is longer than the key to facilitate aligning the key relative to the slot prior to the slot receiving the key.

51. (New) The brake shoe assembly of claim 49 wherein the preassembled fastener facilitates alignment of the plate holes relative to the shoe holes.

52. (New) The brake shoe assembly of claim 41 wherein the preassembled fastener is flared over and around the shoe holes in the brake shoe to secure the brake plate to the brake shoe.

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53. (New) The brake shoe assembly of claim 41 wherein the key in the brake plate is axially elongated and the slot in the brake shoe is axially elongated to receive the elongated key.

54. (New) The brake shoe assembly of claim 41 wherein the key includes a pair of axially elongated keys and the slot includes a pair of axially elongated slots for receiving the pair of axially elongated keys.

55. (New) The brake shoe assembly of claim 41 wherein the key is a circumferential key and the slot is a circumferential slot around part of the brake shoe to receive the circumferential key.

56. (New) The brake shoe assembly of claim 41 wherein the key includes a pair of circumferential keys and the slot includes a pair of circumferentially extending slots for receiving the pair of circumferential keys, the pair of circumferential keys corresponding in size to the circumferentially extending slots.

57. (New) The brake shoe assembly of claim 41 wherein the key mates with the slot to transfer substantial shear forces from the brake plate to the brake shoe when a brake drum in a vehicle applies the substantial shear forces to the brake plate.

58. (New) The brake shoe assembly of claim 41 wherein punching the backing plate forms the key as part of the backing plate.

59. (New) The brake shoe assembly of claim 41 wherein the individual fasteners are rivets.

60. (New) The brake shoe assembly of claim 41 wherein the individual fasteners are threaded clinch stud bolts.

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(10:00 am meeting on Monday, May 18, 2009)

61. (New) A brake shoe assembly comprising:

a brake shoe having an outer curved surface, at least one slot protruding inward from the outer curved surface without passing through the brake shoe, and a plurality of shoe holes passing through the brake shoe to receive individual fasteners;

a backing plate including plate holes, at least one key extending outwardly to mate with the slot for resisting movement of the backing plate relative to the outer curved surface of the brake shoe without the key extending completely through the brake shoe, and a preassembled fastener spaced from the key and extending away from the brake lining and toward the brake shoe to facilitate alignment of the key with the slot;

a frictional brake lining molded to the backing plate to form a continuous molded layer that covers at least one end of the preassembled fastener, the brake lining being free of holes interrupting the continuous molded layer; and

a plurality of individual fasteners that insert through respective plate and shoe holes to secure the backing plate to the brake shoe, the plate holes being spaced from the frictional brake lining to allow insertion of the individual fasteners through respective plate and shoe holes.

62. (New) The brake shoe assembly of claim 61 wherein the backing plate includes four corners defining the plate holes and an area between each of the four corners, the frictional brake lining being molded to the area between each of the four corners to expose the plate holes in the backing plate.

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63. (New) A brake shoe assembly comprising:

a brake shoe having an outer radial surface, at least one slot protruding inward from the outer radial surface without passing through the brake shoe, and a plurality of shoe holes in the outer radial surface for individual fasteners;

a brake plate having a backing plate and a frictional brake lining, wherein the backing plate includes plate holes, a plurality of apertures spaced from each plate hole, at least one key to mate with the slot for resisting radial movement of the brake plate relative to the outer radial surface of the brake shoe without the key passing through the brake shoe, and a preassembled fastener longer than the key spaced from the key and extending away from the brake lining and toward the brake shoe to facilitate alignment of the key with the slot as well as alignment of the plate holes with the shoe holes, and wherein the frictional brake lining is molded into each of the apertures in the backing plate to mechanically attach the frictional brake lining to the backing plate, the frictional brake lining forming a continuous molded layer that is free of holes passing through the molded layer, and the frictional brake lining further covering at least a portion of the preassembled fastener; and

a plurality of individual fasteners that insert through respective plate and shoe holes to secure the brake plate to the brake shoe.

FOR DISCUSSION PURPOSES ONLY

(10:00 am meeting on Monday, May 18, 2009)

64. (New) A brake shoe assembly comprising:

a brake shoe having an outer radial surface, at least one elongated slot protruding inward from the outer radial surface without passing through the brake shoe, and a plurality of shoe holes passing through the brake shoe in the outer radial surface for individual fasteners;

a backing plate including four corners defining plate holes, a plurality of apertures spaced from each plate hole, at least one elongated key extending outwardly to mate with the elongated slot for resisting radial movement of the backing plate relative to the outer radial surface of the brake shoe without the elongated key passing through the brake shoe, and a preassembled fastener longer than the elongated key spaced from the elongated key and plate holes and extending away from the brake lining and toward the brake shoe to facilitate alignment of the elongated key with the elongated slot as well as alignment of the plate holes with the shoe holes;

a frictional brake lining molded into each of the apertures in the backing plate to mechanically attach the frictional brake lining to the backing plate, the frictional brake lining forming a continuous molded layer that is free of holes passing through the molded layer, and the frictional brake lining further covering at least one end of the preassembled fastener as well as portions of the backing plate between each of the four corners in the backing plate while exposing the plate holes in the four corners; and

a plurality of individual fasteners that insert through respective plate and shoe holes to secure the backing plate to the brake shoe.

FOR DISCUSSION PURPOSES ONLY

(10:00 am meeting on Monday, May 18, 2009)

65. (New) A brake shoe assembly comprising:

a brake shoe having an outer radial surface, a plurality of receptacles passing through the outer radial surface, and a plurality of bore holes in the outer radial surface for preassembled fasteners; and

a brake plate having a cylindrical backing plate and a frictional brake lining, wherein the cylindrical backing plate includes tangs to mate with respective receptacles for resisting radial movement of the brake plate relative to the outer radial surface of the brake shoe without the tang passing through the brake shoe, and a plurality of preassembled fasteners spaced from the tangs and extending away from the brake lining and toward the brake shoe to facilitate alignment of the tangs with the receptacles, and wherein the frictional brake lining is molded to the backing plate to form a continuous molded layer that covers each of the preassembled fasteners, the brake lining being free of holes extending through the continuous molded layer;

wherein the tangs and the receptacles supplement the preassembled fasteners in securing the brake plate to the brake shoe and particularly resist shear forces between the brake plate and brake shoe.

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66. (New) A brake shoe assembly comprising:

a brake shoe having an outer surface defining a plurality of flats, the flats including a plurality of holes to receive preassembled fasteners and at least one key way spaced from each of the holes and protruding inward from the outer surface; and

a brake block having a generally flat backing plate and an arcuate frictional brake lining, wherein the flat backing plate includes at least one key extending outwardly to mate with the key way and resist radial movement of the brake block relative to the outer radial surface of the brake shoe and a plurality of preassembled fasteners spaced from the key, each of the preassembled fasteners extending away from the brake lining and toward the brake shoe to facilitate alignment of the key with the key way, and wherein the arcuate frictional brake lining is molded to the flat backing plate to form a continuous molded layer that covers the preassembled fasteners;

wherein the key and the key way supplement the preassembled fasteners in securing the brake block to the brake shoe and particularly resist shear forces between the brake block and brake shoe.

67. (New) The brake shoe assembly of claim 66 wherein the arcuate frictional brake lining is molded to the key in the flat backing plate without extending completely through the key way of the brake shoe when the key mates with the key way.

68. (New) The brake shoe assembly of claim 66 wherein the key is formed by a portion of the backing plate partially punched through the backing plate and the key way is a hole formed in the brake shoe at a location corresponding to the location of the key in the brake plate.

FOR DISCUSSION PURPOSES ONLY

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69. (New) A brake shoe assembly comprising:

a brake shoe having an outer surface defining a plurality of flats, the flats including a plurality of holes to receive preassembled fasteners and at least one bore spaced from each of the holes and protruding inward from the outer surface; and

a brake block having a generally flat backing plate and an arcuate frictional brake lining, wherein the flat backing plate includes at least one key extending outwardly to mate with the bore and resist radial movement of the brake block relative to the outer radial surface of the brake shoe and a plurality of preassembled fasteners spaced from the key, each of the preassembled fasteners extending away from the brake lining and toward the brake shoe to facilitate alignment of the key with the bore, and wherein the arcuate frictional brake lining is molded to the flat backing plate to form a continuous molded layer that covers the preassembled fasteners without extending completely through the bore of the brake shoe when the key mates with the bore;

wherein the key and the bore supplement the preassembled fasteners in securing the brake block to the brake shoe and particularly resist shear forces between the brake block and brake shoe.